

## Abstract

A multiple wavelength semiconductor laser is disclosed. The multiple wavelength semiconductor laser has a first edge emitting type resonator structure and a  
5 second edge emitting type resonator structure disposed on a common substrate through a separation region. The first edge emitting type resonator structure has an oscillation wavelength of 650 nm. The second edge emitting type resonator structure has an oscillation  
10 wavelength of 780 nm. A low reflection film that is a three-layer dielectric film composed of a first  $\text{Al}_2\text{O}_3$  film of 60 nm, a  $\text{TiO}_2$  film of 55 nm, and a second  $\text{Al}_2\text{O}_3$  film of 140 nm, where the refractive index of the  $\text{TiO}_2$  film is smaller than the refractive index of the first  
15  $\text{Al}_2\text{O}_3$  film and the refractive index of the second  $\text{Al}_2\text{O}_3$  film.